

**LETHA SCHOOL (PWS #3230020)
SOURCE WATER ASSESSMENT FINAL REPORT**

January 4, 2001



**State of Idaho
Department of Environmental Quality**

Disclaimer: This publication has been developed as part of an informational service for the source water assessments of public water systems in Idaho and is based on the data available at the time and the professional judgement of the staff. Although reasonable efforts have been made to present accurate information, no guarantees, including expressed or implied warranties of any kind, are made with respect to this publication by the state of Idaho or any of its agencies, employees, or agents, who also assume no legal responsibility for the accuracy of presentations, comments, or other information in this publication. The assessment is subject to modification if new data is produced.

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for Letha School*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Letha School drinking water system consists of one artesian well. There have been no detections of inorganic, volatile organic, or synthetic organic chemicals, or of total coliform (microbial) bacteria above the maximum contaminant levels established by the Safe Drinking Water Act.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Letha School, source water protection activities should focus on environmental education with the residents and the parties engaged in activities that may affect water quality in the designated source water area. Most of the designated areas are outside the direct jurisdiction of Letha School. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, Gem Soil Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies, please contact your regional Idaho Department of Environmental Quality office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR LETHA SCHOOL

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area is attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

Letha School is located approximately eight miles northwest of Emmett, Idaho, and about 1,300 feet northeast of State Highway 52 (Figure 1). The public drinking water system for Letha School is comprised of one artesian well that has an average water production rate of 4,000 gallons per day.

There have been no detections in the Letha School water system of inorganic, volatile organic, or synthetic organic chemicals, or of total coliform (microbial) bacteria above maximum contaminant levels established by the Safe Drinking Water Act.

Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the three-year (Zone 1B), six-year (Zone 2), and ten-year (Zone 3) time-of-travel (TOT) for water associated with the Payette Valley hydrogeologic unit in the vicinity of Letha School. The outer boundaries of the zones represent the distance it takes water to travel to a specific well within a specific time period. For example, water at the outer 3-year time of travel boundary should take three years to travel to the well. The computer model used site-specific data, assimilated by DEQ from a variety of sources including nearby well logs. Because a well log for the Letha School well was not available, well logs of nearby wells were used to help delineate the source water assessment area. The delineated source water assessment area for Letha School is narrow about the well and gradually widens to approximately 4,300 feet some 4,000 feet south of the well (Figure 2). The actual data used by DEQ to determine the source water assessment delineation area are available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineated areas were obtained by field surveys conducted by DEQ and from available databases.

Dominant land use in the vicinity of Letha School is irrigated agriculture. The area consists of rural homes that operate with septic systems. Because of probable pesticide use, the area is located in an organics priority area, where more than 25% of wells and springs show levels of pesticides greater than 1% of the primary standard or other health standards.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware they are located near a public water supply well.

FIGURE 1. Geographic Location of the Letha School

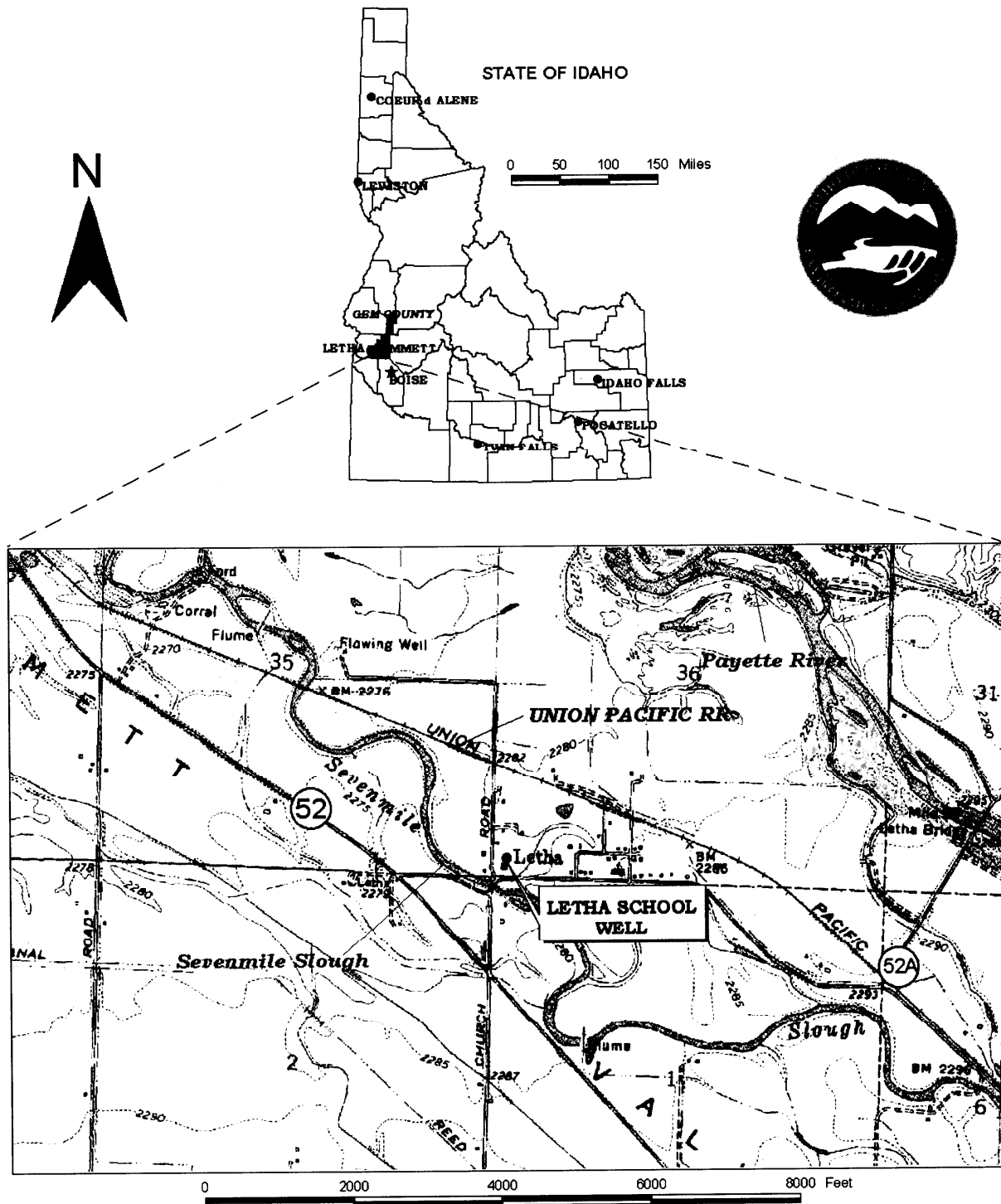
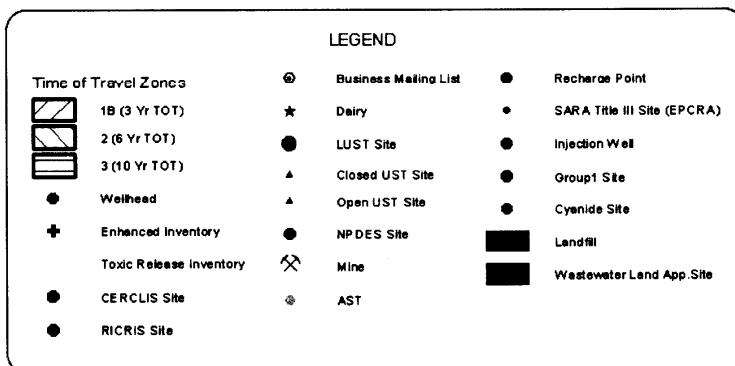
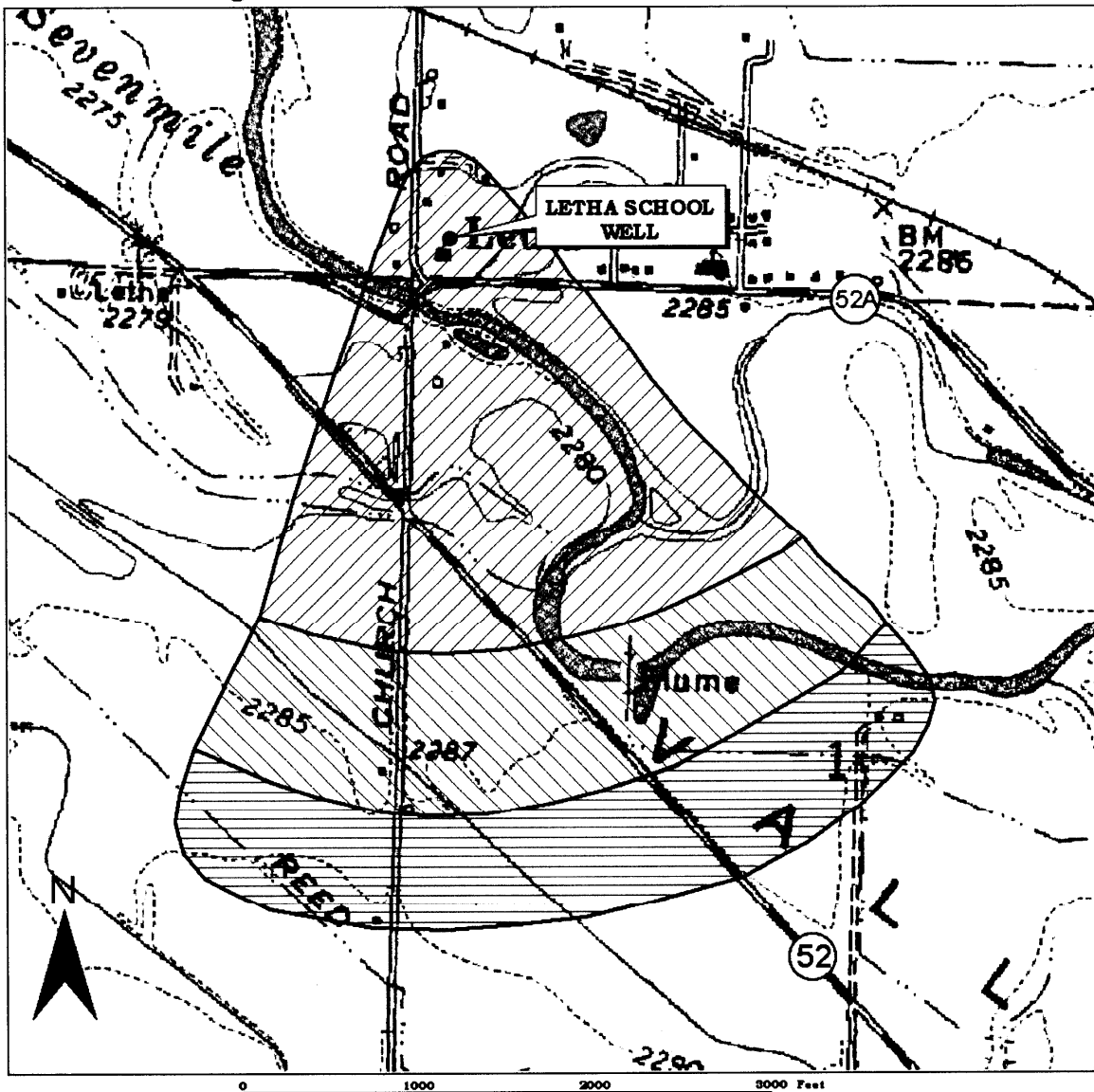


Figure 2 - Letha School: Delineation Map



PWS# 3230020
LETHA SCHOOL

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during September of 2000. This inventory involved searching for potential contaminant sources within the Letha School source water assessment area using computer databases and Geographic Information System maps developed by DEQ. No potential contaminant sites were located within the delineated source water area of the Letha School well.

Section 3. Susceptibility Analyses

Susceptibility of the well to contamination was ranked as either high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility ranking relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility rankings.

Hydrologic Sensitivity

Hydrologic sensitivity takes into account the relative ease with which water can migrate to the well. A well log for the Letha School well is not on file with the Idaho Department of Water Resources. Because the well log is not on file, information from well logs of nearby wells was used to aid in the delineation of the source water assessment area. Based on this information, it was assumed that the Letha School well is completed in a confined aquifer with confining clay layers less than 50 feet in cumulative thickness. It was also assumed that depth to water is less than 300 feet and that the soil is moderate to well drained. Due to these assumptions the Letha School well received a high hydrologic sensitivity ranking.

Well Construction

Well construction directly affects the ability of a well to protect the aquifer from contaminants. For these source water assessments, a lower well construction score would be given to a system that can better protect the water. The Letha School drinking water system consists of one well that extracts ground water for the school's use. A well log is not available for the Letha School well, and therefore it is not known whether Idaho Department of Water Resource well construction standards are met. Because of this, the Letha School well construction ranking is moderate.

Potential Contaminant Source and Land Use

The Letha School well rated low for susceptibility to inorganic, volatile organic, and synthetic organic chemical classes, and also low susceptibility to microbial contaminants. Land use in the delineated area is predominantly irrigated agriculture. The delineated area is located in an organics priority area, where more than 25% of the wells and springs show levels of organic compounds (pesticides, volatile organic

compounds) greater than one percent of the Safe Drinking Water Act maximum contaminant levels or other health standards.

Final Susceptibility Ranking

Although no detections of inorganic chemicals, volatile organic chemicals, synthetic organic chemicals, or microbial contaminants have been recorded, the Letha School well was given a moderate final susceptibility ranking. This moderate ranking is predominantly due to the lack of available well construction and lithologic information and the assumptions that were made about the Letha School system.

Table 1. Summary of Letha School Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				Well Construction	Final Susceptibility Ranking			
		Contaminant ²					Contaminant ²			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
1	H	L	L	L	L	M	M	M	M	

¹ H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

² IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, Microbials = microbial contaminants

Section 4. Options for Source Water Protection

This susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Letha School, source water protection activities should focus on environmental education with the agricultural users, residents, and the parties engaged in activities that may affect water quality within the vicinity. Most of the delineated areas are outside the direct jurisdiction of Letha School. Partnerships with state and local agricultural agencies and industrial groups should be established and are critical to success. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities can be coordinated with the Idaho Department of Agriculture, the Idaho Department of Lands, the U.S. Bureau of

Reclamation, the City of Emmett, and other federal, state, and local agencies that have jurisdiction within the source water area.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office: (208) 373-0550

State of Idaho DEQ Office: (208) 373-0502

State of Idaho DEQ Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Division of Environmental Quality, December, 1994. Ground Water and Soils Reconnaissance of the Lower Payette Area, Payette County, Idaho. Ground Water Quality Technical Report No. 5.

Idaho Division of Environmental Quality, 1996. Lower Payette River Agriculture Irrigation Water Return Study and Ground Water Evaluation, Payette County, Idaho. Water Quality Status Report No. 115.

Idaho Division of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Environmental Quality, 2000. City of Fruitland Wellhead Viability Project 319 Grant Final Report July 2000.

Natural Resources Conservation Service, 1991. Idaho Snake-Payette Rivers Hydrologic Unit Plan of Work. March 1991.

United States Geological Survey, 1986. Quality of Ground Water in the Payette River Basin, Idaho. United States Geological Survey Water Resources Investigation Report 86-4013.

University of Idaho, April, 1986. Ground Water Resources in a Portion of Payette County, Idaho. Idaho Water Resources Research Institute. University of Idaho. Moscow, Idaho.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as “Superfund”, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical site/facility using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100 year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

Attachment A

Letha School Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC* Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
*VOC = volatile organic compound, SOC = synthetic organic compound, IOC = inorganic compound
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- ≥13 High Susceptibility

Ground Water Susceptibility Report

Public Water System Name :

LETHA SCHOOL

Well# : WELL 1-ARTESIAN

Public Water System Number 3230020

11/29/2000 10:21:20 AM

1. System Construction			SCORE			
	Drill Date					
	Driller Log Available	NO				
	Sanitary Survey (if yes, indicate date of last survey)	YES	1995			
	Well meets IDWR construction standards	NO	1			
	Wellhead and surface seal maintained	YES	0			
	Casing and annular seal extend to low permeability unit	NO	2			
	Highest production 100 feet below static water level	NO	1			
	Well located outside the 100 year flood plain	YES	0			
Total System Construction Score			4			
2. Hydrologic Sensitivity						
	Soils are poorly to moderately drained	NO	2			
	Vadose zone composed of gravel, fractured rock or unknown	YES	1			
	Depth to first water > 300 feet	NO	1			
	Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score			6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
	Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
	Farm chemical use high	NO	0	0	0	
	IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			2	2	2	2
Potential Contaminant / Land Use - ZONE 1B						
	Contaminant sources present (Number of Sources)	NO	0	0	0	0
	(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
	Sources of Class II or III leacheable contaminants or	NO	0	0	0	
	4 Points Maximum		0	0	0	
	Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
	Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B			4	4	4	4
Potential Contaminant / Land Use - ZONE II						
	Contaminant Sources Present	NO	0	0	0	
	Sources of Class II or III leacheable contaminants or	NO	0	0	0	
	Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II			2	2	2	0
Potential Contaminant / Land Use - ZONE III						
	Contaminant Source Present	NO	0	0	0	
	Sources of Class II or III leacheable contaminants or	NO	0	0	0	
	Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III			1	1	1	0
Cumulative Potential Contaminant / Land Use Score			9	9	9	6
4. Final Susceptibility Source Score			12	12	12	12
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate